

# **BASIS FOR THE MEDICAL STANDARDS**

**Approved by the National Fire and Aviation Executive Board for the Function of:**

## **WILDLAND FIREFIGHTER (ARDUOUS DUTY)**

*[NOTE: The following is intended for use in conjunction with the “Medical Standards and Review Criteria for Medical Review Officers.” Please refer to that document for more complete and specific information on the standards and assessment of individuals against those standards.]*

Applicants for federal employment, as well as current federal employees, are presumed to be medically qualified unless there is specific medical evidence that they are not. For some positions, specific medical standards or requirements are justified because of the arduous/hazardous nature of the functions to be conducted or the circumstances under which they are conducted, the need for a high degree of reliability and safety for employees, and a commitment by the employing agency to maintain a high degree of responsibility toward public safety.

The basis for the wildland firefighter medical standards is the functional relationship between time/work volume, physical requirement, environment, and physical exposure factors that may be expected with fire fighting, and the emotional and physical ability of the firefighter to carry out their tasks safely and efficiently. The Attachment to this document provides a summary of these factors.

Sustaining an agency’s decision to not hire, or to impose a job restriction or limitation on an employee, the Office of Personnel Management must consider whether the agency has

(1) documented the degree of the applicant’s impairment; (2) weighed the seriousness of the applicant’s medical condition[s]; (3) identified medication requirement[s]; (4) identified the essential functions the applicant would need to perform at work; (5) identified the environmental, industrial, and occupational conditions under which the job tasks or essential functions would be required to be performed; and (6) considered whether the functional requirements and work conditions would aggravate, accelerate, exacerbate, or permanently worsen any pre-existing medical condition the individual may have.

The wildland firefighter (arduous duty) medical standards establish the levels of minimum medical fitness that the agency has determined to be necessary for safe and efficient job performance. Specifically:

The PSYCHIATRIC standard relates (A) the firefighter’s need for judgement, mental functioning, and social/behavior skills with (B) the essential functions and work conditions of a wildland firefighter, including working on small and large teams, flying in helicopters and fixed wing aircraft, and rapid pull out to safety zones under conditions that may include isolated or remote sites, snakes, close quarters with large numbers of other workers, limited and disrupted sleep, and long work hours. Some psychiatric conditions, including those listed in the standards, may not be compatible with safe and

efficient performance of wildland firefighter duties under these conditions.

The PROSTHETICS, TRANSPLANTS, AND IMPLANTS standard relates (A) the firefighter's need to work safely and efficiently despite medical conditions that have led to the need for a prosthesis, transplant or implant with (B) the essential functions and work conditions of a wildland firefighter, including using shovels or other hand tools to construct fire lines, using personal protective equipment, engaging in arduous exertion, carrying heavy loads, walking and climbing, kneeling and stooping, and pulling out rapidly to safety zones, and doing so under conditions that may include very steep terrain, rocky, loose or muddy surfaces, wet leaves and grasses, isolated and remote sites, and very long assignments. For individuals with transplants, prosthetics, or implanted pumps or electrical devices, the examinee will have to provide for agency review documentation from his/her surgeon or physician that the individual (and, if applicable, his/her prosthetic or implanted device) is considered to be fully cleared for the specified functional requirements of wildland fire fighting.

The IMMUNE SYTEM/ALLERGIC DISORDERS standard relates (A) the firefighter's need to be free of infectious disease, immune system, or allergy conditions likely to present a safety risk to self or others with (B) the essential functions and work conditions of a wildland firefighter, including arduous exertion, driving or riding for many hours, and providing rescue or evacuation assistance under conditions that may include isolated or remote sites, allergens, close quarters with large numbers of other workers, and long assignments. Some immune system/allergic conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The MEDICATION standard relates (A) the firefighter's need for full physical and mental function and attention and a low risk of sudden or subtle incapacitation with (B) the essential functions and work conditions of a wildland firefighter under conditions that may include open holes and drop offs, isolated and remote sites, irregular meals, dehydration, and long work assignments. Some medications may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The VISION standard relates (A) the firefighter's need to be able to see (including binocular vision, visual acuity, depth perception, peripheral vision, and color vision) with (B) the essential functions and work conditions of a wildland firefighter, including driving, walking, climbing, constructing fire lines, and rapid pull out to safety zones under conditions that may include very steep terrain, rocky, loose or muddy ground surfaces, open holes or drop offs, and dim light or darkness. The limit for uncorrected far vision is set at 20/100 binocular, consistent with the National Fire Protection Association's Standard on Medical Requirements for Fire Fighters (NFPA 1582, 1997 Edition), and with a field assessment by the medical standards team in which different levels of acuity were considered in an operational setting related to the need for rapid or emergency movement under the conditions noted above. Long-term users of soft contact lenses are not subject to the uncorrected far vision standard. Corrected far vision is set at 20/40, and the color vision requirement is for red/green/amber (yellow), consistent with Department of Transportation regulations for commercial driving and the need for safe and efficient function under expected fire fighting conditions. Peripheral vision is set as 85<sup>0</sup> laterally, which is generally considered to be normal. Some

vision conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The HEAD, NOSE, MOUTH, THROAT AND NECK standard relates (A) the firefighter's need to be able to move the head without restriction, breath freely, wear personal protective equipment, and communicate clearly with (B) the essential functions and work conditions of a wildland firefighter, including working on small and large teams, flying in helicopters and fixed wing aircraft, and fighting fire under conditions that may include high (and changing) altitudes, allergens, varied climates, and isolated and remote sites. Some head, nose, mouth, throat, and neck conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The HEARING standard relates (A) the firefighter's need to hear verbal communications and both natural and manmade warning sounds with (B) the essential functions and work conditions of a wildland firefighter, including working on small and large teams, driving, rapid pull out to safety zones, and providing rescue or evacuation assistance under conditions that may include isolated and remote sites, falling rocks and trees, trucks and other large equipment. The hearing standard is set at an average threshold of no greater than 40 dB at 500, 1000, 2000, and 3,000 Hz in each ear, consistent with the DOT regulations for commercial drivers. This level is more lenient than that allowed by the NPFA 1582 standards (30 dB average threshold at these frequencies), or what is considered to be "normal" hearing (25 dB), but is felt to provide a reasonable hearing threshold level where louder than normal communications may be expected. Hearing aides are not permitted in meeting this standard, due both to the limitation in directional hearing afforded by hearing aides, and to the risk of dislodging of a hearing aid during critical or emergency periods when hearing must be acute. Some ear and hearing conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The DERMATOLOGY standard relates (A) the firefighter's need for intact and healthy skin with (B) the essential functions and work conditions of a wildland firefighter, including use of personal protective equipment, extensive walking and climbing, under conditions that may include highly variable climates, extreme ultraviolet light exposure, extreme heat, allergens, and isolated or remote sites. Some dermatologic conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The VASCULAR SYSTEM standard relates (A) the firefighter's need for a healthy vascular system (including a lack of phlebitis, thrombosis, venous stasis, or arterial insufficiency) with (B) the essential functions and work conditions of a wildland firefighter, including arduous exertion, driving or riding for extensive periods, flying in helicopters and fixed wing aircraft, and extensive walking and climbing under conditions that may include isolated or remote sites, and long work assignments. Some vascular conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The CARDIAC standard relates (A) the firefighter's need for a healthy cardiovascular system and a low

risk of sudden or subtle incapacitation with (B) the essential functions and work conditions of a wildland firefighter, including arduous exertion, lifting and carrying heavy loads, extensive walking and climbing, and rapid pull out to safety zones under conditions that may include very steep terrain, isolated and remote sites, extreme heat, dehydration, and long work assignments. Some cardiac conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions. The standard for blood pressure was set at 140/90 or below (with or without medication). Above this level is considered to be hypertension (high blood pressure), a condition associated with increasing risk of cardiovascular morbidity and mortality.

The CHEST AND RESPIRATORY SYSTEM standard relates (A) the firefighter's need for a healthy respiratory system and residual aerobic capacity with (B) the essential functions and work conditions of a wildland firefighter, including arduous exertion, carrying heavy loads, and extensive walking and climbing under conditions that may include very steep terrain, high altitudes, airborne particulates, and allergens. Some chest and respiratory conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions. The stated standards of 70% of predicted values for forced vital capacity (FVC), forced expiratory volume at 1 second (FEV<sub>1</sub>), and the ratio of FEV<sub>1</sub>/FVC are intended as screens for further evaluation, not mandatory values. The requirement for agency review when inhalers are used is based on both the general incompatibility of inhalers and high heat or fire (according to guidance from inhaler manufacturers) and concern regarding the degree of respiratory sensitivity an individual may bring to a setting of high irritant exposure.

The ENDOCRINE AND METABOLIC SYSTEM standard relates (A) the firefighter's need for normal body function and maintenance and a low risk of sudden or subtle incapacitation with (B) the essential functions and work conditions of a wildland firefighter, including arduous exertion under conditions that may include isolated and remote sites, hunger and irregular meals, dehydration, irregular hours, and long assignments. Some endocrine and metabolic conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The CONDITION OF PREGNANCY does not become an issue under most circumstances since the condition is not a disability, and is a time-limited condition. If a female applicant or incumbent raises the issue of pregnancy as the basis for a request for a special benefit, a change in duty status, or job restrictions, then justification and clarifying information for that request must be provided by the woman's obstetrician or primary care physician, along with the estimated time period the special conditions are expected to apply.

The HEMATOPOIETIC SYSTEM standard relates (A) the firefighter's need for a healthy blood and blood producing system and a low risk of sudden or subtle incapacitation with (B) the essential functions and work conditions of a wildland firefighter, including arduous exertion under conditions that may include high altitudes, isolated and remote sites, extreme heat, close quarters with large numbers of other workers, dehydration, and long assignments. Some blood and blood producing conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The MUSCULOSKELETAL SYSTEM standard relates (A) the firefighter's need for strength, flexibility, range of motion, and joint stability with (B) the essential functions and work conditions of a wildland firefighter, including arduous exertion, extensive walking and climbing, kneeling and stooping, lifting and carrying heavy loads, and rapid pull out to safety zones under conditions that may include rocky, loose, or muddy ground surfaces, thick vegetation, wet leaves and grass, and falling rocks and trees. Some musculoskeletal conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The CENTRAL AND PERIPHERAL NERVOUS SYSTEM and VESTIBULAR SYSTEM standards relate (A) the firefighter's need for balance, sensation of surroundings and self, and a low risk of sudden or subtle incapacitation with (B) the essential functions and work conditions of a wildland firefighter, including use of hand and power tools, flying in helicopters and fixed wing aircraft, and extensive walking and climbing under conditions that may include isolated and remote sites, very steep terrain, rocky, loose, or muddy ground surfaces, wet leaves and grass, heights, open holes and drop offs, falling rocks and trees, trucks and other large equipment, and high heat. Some sensory conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The GASTROINTESTINAL SYSTEM standard relates (A) the firefighter's need to be able to consume adequate nutrition and calories, and to have a low risk of sudden or subtle incapacitation, with (B) the essential functions and work conditions of a wildland firefighter, including arduous exertion, driving or riding for many hours, and flying in helicopters and fixed wing aircraft under conditions that may include isolated or remote sites, close quarters with large number of other workers, hunger and irregular meals, and long assignments. Some gastrointestinal conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The GENITOURINARY SYSTEM standard relates (A) the firefighter's need for a healthy genitourinary system and a low risk of sudden or subtle incapacitation with (B) the essential functions and work conditions of a wildland firefighter, including arduous exertion, driving or riding for long periods, and flying in helicopters and fixed wing aircraft under conditions that may include isolated or remote sites, hunger and irregular meals, dehydration, and long assignments. Some genitourinary conditions, including those listed in the standards, may not be compatible with safe and efficient performance of wildland firefighter duties under these conditions.

The agency's medical evaluation and clearance procedures are performed in accordance with the guidance as set forth in the following legislative authorities and references:

- The Rehabilitation Act of 1973, as amended, 29 U.S.C. 791, et seq.
- 29 CFR 1614, Equal Employment Opportunity Commission
- 5 CFR 339, Medical Qualification Determinations, March 8, 1989
- 5 U.S.C., Sections 3312 and 3318, Preference Eligibles

**ESSENTIAL FUNCTIONS AND WORK CONDITIONS OF A  
WILDLAND FIREFIGHTER**

Time/Work Volume	Physical Requirements	Environment	Physical Exposures
<i>May include:</i>			
<ul style="list-style-type: none"> <li>• long hours (minimum of 12 hour shifts)</li> <li>• irregular hours</li> <li>• shift work</li> <li>• time zone changes</li> <li>• multiple and consecutive assignments</li> <li>• pace of work typically set by emergency situations</li> <li>• ability to meet “arduous” level performance testing (the “Pack Test”), which includes carrying a 45 pound pack 3 miles in 45 minutes, approximating an oxygen consumption (VO<sub>2</sub> max) of 45 mL/kg-minute</li> <li>• typically 14-day assignments <i>But may extend up to 21-day assignments</i></li> </ul>	<ul style="list-style-type: none"> <li>• use shovel, Pulaski, and other hand tools to construct fire lines</li> <li>• lift and carry more than 50#</li> <li>• lifting or loading boxes and equipment</li> <li>• drive or ride for many hours</li> <li>• fly in helicopters and fixed wing airplanes</li> <li>• work independently, and on small and large teams</li> <li>• use PPE (includes hard hat, boots, eyewear, and other equipment)</li> <li>• arduous exertion</li> <li>• extensive walking, climbing</li> <li>• kneeling</li> <li>• stooping</li> <li>• pulling hoses</li> <li>• running</li> <li>• jumping</li> <li>• twisting</li> <li>• bending</li> <li>• rapid pull-out to safety zones</li> <li>• provide rescue or evacuation assistance</li> <li>• use of a fire shelter</li> </ul>	<ul style="list-style-type: none"> <li>• very steep terrain</li> <li>• rocky, loose, or muddy ground surfaces</li> <li>• thick vegetation</li> <li>• down/standing trees</li> <li>• wet leaves/grasses</li> <li>• varied climates (cold/hot/wet/dry/humid/snow/rain)</li> <li>• varied light conditions, including dim light or darkness</li> <li>• high altitudes</li> <li>• heights</li> <li>• holes and drop offs</li> <li>• very rough roads</li> <li>• open bodies of water</li> <li>• isolated/remote sites</li> <li>• no ready access to medical help</li> </ul>	<ul style="list-style-type: none"> <li>• light (bright sunshine/UV)</li> <li>• burning materials</li> <li>• extreme heat</li> <li>• airborne particulates</li> <li>• fumes, gases</li> <li>• falling rocks and trees</li> <li>• allergens</li> <li>• loud noises</li> <li>• snakes</li> <li>• insects/ticks</li> <li>• poisonous plants</li> <li>• trucks and other large equipment</li> <li>• close quarters, large numbers of other workers</li> <li>• limited/disrupted sleep</li> <li>• hunger/irregular meals</li> <li>• dehydration</li> </ul>